



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/885,012	06/21/2001	Kazunori Iwamoto	684.3200	4403

5514 7590 07/17/2002

FITZPATRICK CELLA HARPER & SCINTO
30 ROCKEFELLER PLAZA
NEW YORK, NY 10112

EXAMINER

ESPLIN, DAVID B

ART UNIT

PAPER NUMBER

2851

DATE MAILED: 07/17/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/885,012

Applicant(s)

IWAMOTO ET AL.

Examiner

D. Ben Esplin

Art Unit

2851

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 June 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☒ Claim(s) 8 and 11-27 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 June 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3. 6) ☐ Other: _____

DETAILED ACTION***Drawings***

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the interferometer must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The disclosure is objected to because of the following informalities: The reference numeral 32, shown in FIG. 4A, is not referred to in the specification.

Appropriate correction is required.

Claim Objections

Claims 8, and 11-27 are objected to because of the following informalities:

Referring to claim 8, in claiming a driving mechanism for positioning the moving mechanism Applicant refers to "a movable portion" when there is already an antecedent basis for

Art Unit: 2851

a movable portion. This language makes it unclear whether Applicant is referring to a new movable portion, or to the previously defined movable portion.

In reference to claims 11-27, in claim 11 reference to “the original” is made without an antecedent basis in the claims. It is suggested that this language be amended to “an original”.

Regarding claims 20, 24 and 25, in claim 20 reference to “the reaction force counter” is made without an antecedent basis in the claims. It is suggested that this language be amended to “a reaction force counter”.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

Claims 1-9 and 11-20 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 6,271,606 to Hazelton.

FIG. 9 of Hazelton shows a moving mechanism including a reference structure having a guide surface (mass base 98), and a moveable portion (chamber 14). The moving mechanism further containing an actuator (linear motor 58), shown in more detail in FIG. 4d, that is made up

Art Unit: 2851

of a moveable element (projection 90) disposed on the side of the moveable portion, and stators (coils of electrical wires 46). The stators being movable along the guide surface by way of being contained within frames 96 which are mounted on reaction masses 26, supported on top of the guide surface by air bearings that are not shown (col. 11 lines 62-64). This arrangement allows the stators to be moved by the reaction force produced as the moveable portion is driven (col. 11 lines 65+). FIG. 4d also shows that the stators of the linear motor are coils of the electrical wires 46, and that the movable element is a permanent magnet (magnet 42). FIG. 5d shows an alternative embodiment of the linear motor, in which the movable element is made of coils of the electrical wires 46, and the stators are permanent magnets (magnets 42). While Hazelton does not expressly teach of a position measuring device, the inclusion of one is inferred since Hazelton does disclose a driving mechanism (trim motor 99) for positioning a reaction force counter (reaction masses 26) along the guide surface in order to make minor corrections in the positioning of the reaction force counter. In order for corrections to be made, some sort of quantitative measurement of position must be made to determine if corrections are necessary, and if so, what they are.

The moving mechanism of Hazelton is further disclosed as being provided for moving a stage in an exposure apparatus (see the abstract), the exposure apparatus being shown in FIG. 10. The exposure apparatus further including exposure means for patterning a circuit pattern from an original to a substrate through a projection optical system (col. 12 lines 10+), with both the original (reticle) and the substrate (semiconductor wafer) being moved relatively to the projection optical system (lens assembly 88) by means of stages (reticle stage 28 and wafer stage 30) actuated by the above described moving mechanism. The projection optical system and

Art Unit: 2851

stages of Hazelton are also shown as being mounted onto a barrel base (apparatus frame 100).

Hazelton also teaches that ArF excimer ultraviolet laser light may be used as exposure light (col. 13 lines 34-36). FIG. 10 also shows the projection optical system as extending to the stage, thereby acting as a shielding wall creating an atmosphere controlled environment, such an environment being made necessary by the use of some types of exposure light (col. 13 line 34 – col. 14 line 15).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hazelton as applied to claims 1-9 and 11-20 above, and further in view of U.S. Patent No. 5,858,587 to Yamane et al.

While Hazelton is silent with respect to including theta or z axis tilt control in the stage driven by the described moving mechanism, Yamane shows that stages adjustable for theta and z axis tilt and driven by a moving mechanism were well known in the art (FIGS. 16 and 17). Therefore, it would have been obvious to one of ordinary skill to replace the ordinary stage of Hazelton with the more adjustable stage shown in Yamane as an art recognized equivalent.

Claims 21-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hazelton as applied to claims 1-9 and 11-20 above, and further in view of U.S. Patent Application Publication No. US2001/0052967 to Ogura et al.

Hazelton is silent with respect to the linking of the described exposure apparatus, along with other production machines, to a local area network, accessible by an external network for performing data communication for creating a maintenance information database. However, FIGS. 4-6 of Ogura show that such an arrangement was well known (paragraphs 41-46). Therefore, it would have been obvious to install the apparatus of Hazelton in a production system like the one disclosed in Ogura as an art recognized use.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent No. 6,252,234 to Hazelton et al. discloses a reaction force isolation system for a planar motor that includes stators that move according to a reaction force.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to D. Ben Esplin whose telephone number is (703) 305-4022. The examiner can normally be reached on Mon.-Fri. (8am-4:30 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Russ Adams can be reached on (703) 308-2847. The fax phone numbers for the

Art Unit: 2851

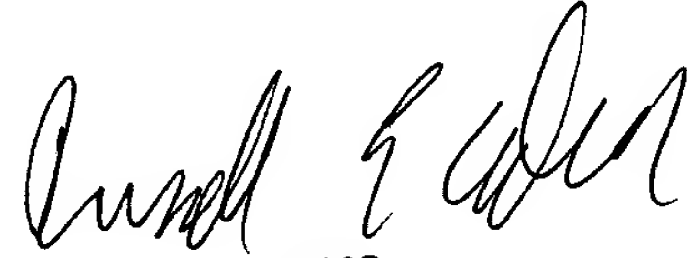
organization where this application or proceeding is assigned are (703) 305-3431 for regular communications and (703) 308-7382 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

DBE

DBE

July 11, 2002



RUSSELL ADAMS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800